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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/764,481	Applicant(s) HIYAMA ET AL.
	Examiner MARK A. MAIS	Art Unit 2619

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 02 July 2008.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-8 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-8 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 27 January 2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/0256/06)
 Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____

5) Notice of Informal Patent Application

6) Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 2, 2008 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Leung (USP 6,636,498).

4. With regard to claim 1, Leung discloses a *cellular* communication system wherein *a mobile communication service area is divided into a plurality of location register areas, and a mobile router in a dormant state moving with a plurality of mobile nodes in a dormant state [a mobile router is interpreted in active state when it is on/used, and in a dormant state when it is in sleep mode/idle/un-used/off]* performs location update of the mobile nodes on behalf of the mobile nodes, the *cellular* communication system comprising:
 - a unit for retaining a flag indicating whether the mobile router is *in an active state or a dormant state [in the registration REQUEST, the D bit informs the home agent which entity is performing the decapsulation, col. 12, lines 17-18; interpreted as whether a mobile router is in active state or a dormant state—specifically, active is on/used and dormant is sleep/idle/un-used/off]* ;
 - a unit for inquiring about routing address information for the mobile router *in an active state [mobile router being used]* based on the value of the retained flag when paging is performed to the mobile node *[in the registration REQUEST (the interpreted as an inquiry) the D bit is set to indicate whether the mobile router is in the home network (i.e., collocated care-of-address) or it is using a foreign agent's care-of-address, col. 12, lines 18-20]*; and
 - a unit for performing paging to *at least one of* the mobile *nodes* using the obtained routing address information *of the mobile router in an active state [mobile router being used]* as a result of the inquiry *[the type field identifies the registration REPLY as a result of the*

registration REQUEST, col. 12, lines 9-10; interpreted as an the reply (result) to the inquiry].

5. With regard to claim 2, Leung discloses a unit for setting the first flag to a value indicating an active state in response to a first signal sent from the mobile node and indicating start of communication **[in the registration REQUEST, the S bit is set to create a binding for a care-of-address, col. 12, lines 10-13; interpreted as an active state]**, and

setting the second flag to a value indicating a dormant state in response to a second signal sent from the mobile node and indicating end of communication **[in the registration REQUEST, the S bit is set to delete a binding for a care-of-address, col. 12, lines 10-13; interpreted as a dormant state]**.

6. With regard to claim 3, Leung discloses a *cellular* communication system wherein *a mobile communication service area is divided into a plurality of location register areas, and a mobile router in a dormant state* **[a mobile router is interpreted in active state when it is on/used, and in a dormant state when it is in sleeps mode/idle/un-used/off]** with a plurality of moving with mobile nodes performs location update of the mobile nodes on behalf of the mobile nodes; the *cellular* communication system comprising:

a routing manager [home agent]; and

a location manager [foreign agent; a second Foreign Agent will receive the FA care-of-address in response to a registration request (Fig. 3A)],

the routing manager [home agent] comprising:

a table for storing routing address information for the mobile router [**home agent creates and deletes bindings for specified care-of addresses, col. 12, lines 10-13; using mobility binding table, col. 7, lines 31-34**]; and

a unit for, when the routing address information for the mobile router in the table is updated, notifying the updated routing address information *to the location manager* [**home agent creates and deletes bindings for specified care-of addresses, col. 12, lines 10-13; using mobility binding table, col. 7, lines 31-34; the creating/deleting of bindings is interpreted as the notification of the updates using registration REQUEST/REPLY**]; and

the location manager [foreign agent; a second Foreign Agent will receive the FA care-of-address in response to a registration request (Fig. 3A)] comprising:

a table for storing the routing address information notified by the routing manager as location area information for the mobile router [**mobile router being used**] *in an active state [Foreign Agent maps connectivity to mobile networks through the mobile router, col. 12, lines 58-59; using the visitor table, col. 12, lines 59-67]*; and

a unit for performing paging to the mobile node using the location area information *of the mobile router in an active state [mobile router being used]* stored in the table [**the type field identifies the registration REPLY as a result of the registration REQUEST, col. 12, lines 9-10; interpreted as an the reply (result) to the inquiry; thus, the subsequent transmitted packets (e.g., paging) can be decapsulated and forwarded (to the mobile station) by the Foreign Agent, col. 14, lines 30-40**].

7. With regard to claim 4, Leung discloses a location manager [**foreign agent**] for use in a *cellular communication system* wherein a *mobile communication service area* is divided into a *plurality of location register areas*, and a mobile router moving with mobile nodes performs location update of the mobile nodes on behalf of the mobile nodes; the location manager comprising:

a unit for retaining a flag indicating whether the mobile router is *in an active state or a dormant state* [**in the registration REQUEST, the D bit informs the home agent which entity is performing the decapsulation, col. 12, lines 17-18; interpreted as whether a mobile router is in active state or a dormant state—specifically, active is on/used and dormant is sleep/idle/un-used/off**];

a unit for inquiring about routing address information for the mobile router based on the value of the retained flag when paging is performed to the mobile node [**in the registration REQUEST (the interpreted as an inquiry) the D bit is set to indicate whether the mobile router is in the home network (i.e., collocated care-of-address) or it is using a foreign agent's care-of-address, col. 12, lines 18-20**]; and

a unit for performing paging to *at least one of* the mobile nodes using the routing address information of the mobile router in an active state [**mobile router being used**] obtained as a result of the inquiry [**the type field identifies the registration REPLY as a result of the registration REQUEST, col. 12, lines 9-10; interpreted as an the reply (result) to the inquiry**].

8. With regard to claim 5, Leung means for setting the flag to a first value indicating an active state in response to a first signal sent from the mobile node and indicating a start of communication **[in the registration REQUEST, the S bit is set to create a binding for a care-of-address, col. 12, lines 10-13; interpreted as an active state]**, and

setting the flag to a second value indicating a dormant state in response to a second signal sent from the mobile node and indicating end of communication **[in the registration REQUEST, the S bit is set to delete a binding for a care-of-address, col. 12, lines 10-13; interpreted as a dormant state]**.

9. With regard to claim 6, Leung discloses a location manager **[foreign agent] for use in a cellular communication system** wherein *a mobile communication service area is divided into a plurality of location register areas, and a mobile router in a dormant state [a mobile router is interpreted in active state when it is on/used, and in a dormant state when it is in sleep mode/idle/un-used/off]* moving with a plurality of mobile nodes performs location update of the mobile nodes on behalf of the mobile nodes, the location manager comprising:

a table for storing routing address information for the mobile router, which is notified *from a routing manager* whenever the routing address information is updated, as location area information for the mobile router **[Foreign Agent maps connectivity to mobile networks through the mobile router, col. 12, lines 58-59; using the visitor table, col. 12, lines 59-67]**;

and

a unit for performing paging to at least one of the mobile nodes using the location area information *of the mobile router in an active state [mobile router being used]* stored in the table

[the type field identifies the registration REPLY as a result of the registration REQUEST, col. 12, lines 9-10; interpreted as an the reply (result) to the inquiry; thus, the subsequent transmitted packets (e.g., paging) can be decapsulated and forwarded (to the mobile station) by the Foreign Agent, col. 14, lines 30-40].

10. With regard to claim 7, Leung discloses a routing manager [**home agent**] used for a *cellular* communication system wherein *a mobile communication service area is divided into a plurality of location registration areas, and a mobile router in a dormant state [a mobile router is interpreted in active state when it is on/used, and in a dormant state when it is in sleeps mode/idle/un-used/off] moving with a plurality of mobile nodes performs location update of the mobile nodes on behalf of the mobile nodes, the routing manager comprising:*

*a table for storing routing address information for the mobile router [**mobile router being used**] in an active state [**home agent creates and deletes bindings for specified care-of addresses, col. 12, lines 10-13; using mobility binding table, col. 7, lines 31-34**]; and*

*a unit for replying the routing address information stored in the table in response to an inquiry from a location manager [**foreign agent; a second Foreign Agent will receive the FA care-of-address in response to a registration request (Fig. 3A)**] about the routing address information for the mobile router in an active state [**home agent creates and deletes bindings for specified care-of addresses, col. 12, lines 10-13; using mobility binding table, col. 7, lines 31-34; the creating/deleting of bindings is interpreted as the reply to the inquiry**].*

11. With regard to claim 8, Leung discloses a routing manager [**home agent**] used for a *cellular* communication system wherein *a mobile communication service area is divided into a plurality of location registration areas, and a mobile router in a dormant state* [**a mobile router is interpreted in active state when it is on/used, and in a dormant state when it is in sleeps mode/idle/un-used/off**] moving with a plurality of mobile nodes performs location update of the mobile nodes on behalf of the mobile nodes, the routing manager comprising:

a table for storing routing address information for the mobile router [**mobile router being used**] *in an active state* [**home agent creates and deletes bindings for specified care-of addresses, col. 12, lines 10-13; using mobility binding table, col. 7, lines 31-34**]; and

a unit for, when the routing address information for the mobile router *in an active state* in the table is updated, notifying the updated routing address information to a location manager [**foreign agent; a second Foreign Agent will receive the FA care-of-address in response to a registration request (Fig. 3A)**] [**home agent creates and deletes bindings for specified care-of addresses, col. 12, lines 10-13; using mobility binding table, col. 7, lines 31-34; the creating/deleting of bindings is interpreted as the notification of the updates using registration REQUEST/REPLY**].

Response to Arguments

12. Applicants' arguments filed on July 2, 2008 have been fully considered but they are not persuasive.

13. With respect to the independent claims, Applicants state that Leung et al. relates to Mobile IP and relative to the present invention, and the mobile routers/nodes in Leung et al. must be considered always “on” whereas, apparently, such is not the case with the present invention [**See Applicants' Amendment dated July 2, 2008, page 9, paragraph 1**]. Specifically, Applicants state that Leung et al. fails to consider battery consumption whereas the dormant state of the present invention is meant to suppress battery consumption [**See Applicants' Amendment dated December 20, 2007, page 7, paragraph 2**].

14. First, with respect to the state of the mobile routers/nodes, battery preservation is always an important facet of mobile communications. Battery preservation occurs on many levels to include a battery savings within the framework of different wireless protocols [e.g., battery savings in CDMA networks], battery savings between nodes [using dormant or idle signaling/defaults], as well as battery savings gleaned from efficient operating systems, software that minimizes battery consumption within a mobile node, and/or types of batteries used.

15. Second, if Applicants mean that the current invention uses specific signaling/paging that specifically preserves battery consumption in a mobile node, such a limitation is not in the claims. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., specific signaling/paging that specifically preserves battery consumption in a mobile node) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification,

limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

16. Third, *arguendo*, even if the battery preserving paging/signaling were made explicit, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

17. Fourth, it appears to the examiner that a significant part of Applicants' argument rests on the "states" of the mobile nodes—thus, a three state model appears to be more appropriate; for example, "on", "on—but dormant", and "off". The examiner thinks that such a model would assist Applicants claim their current invention—as the examiner understands it from applicants' specification.

18. With respect to claim 1 and 4, Applicants state that the claimed flag is not disclosed in Leung et al. [See Applicants' Amendment dated July 2, 2008, page 9, paragraph 3]. Specifically, Applicants state that the D-bit in Leung et al. has a different purpose [See Applicants' Amendment dated July 2, 2008, page 9, paragraph 1]. Additionally, Applicants state that the "entity" in Leung et al. includes any one of the home agent, foreign agent, mobile router, and mobile nodes.

19. First, as noted in the rejections of claim 1 and 4 above, the "entity" is interpreted by the examiner as a mobile router which is in active state or a dormant state—specifically, active is on/used and dormant is sleep/idle/un-used/off. The examiner notes the broad but reasonable interpretation of both active and dormant with respect to applicants' specification. Applicants attempt to claim a mobile router/node *which is dormant* fails to consider that a dormant state may include off, un-used, as well as idle.
20. Second, a recitation of the intended use (the use of a flag which has different purpose) of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.
21. With respect to claims 1, 3, 4, and 6, Applicants state that Leung et al. does not perform paging to the mobile node using the obtained routing address information [**See Applicants' Amendment dated July 2, 2008, page 10, paragraph 3**]. Specifically, Applicants argue that although the type field in Leung et al. indicates the Registration Reply as a result of the Registration Request, the type field, apparently, does not indicate specific steps [**See Applicants' Amendment dated July 2, 2008, page 10, paragraph 3 to page 11, paragraph 1**].
22. First, as noted in the rejection of claim 1 above, Leung et al. discloses performing paging to *at least one of* the mobile *nodes* using the obtained routing address information *of the mobile router in an active state* [**mobile router being used**] as a result of the inquiry [**the type field**

identifies the registration REPLY as a result of the registration REQUEST, col. 12, lines 9-10; interpreted as an the reply (result) to the inquiry].

23. Second, if the system has only one mobile node and one mobile router present, the claims are met because the REQUEST is met with a REPLY. In addition, one mobile node can be in the range of two mobile routers where one mobile router may be on [active] and the other mobile router may be off [dormant].

24. Third, if Applicants mean that the paging message must include/contain the routing address of the mobile router in an active state, such a limitation is not seen in the claims. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the paging message must include/contain the routing address of the mobile router in an active state) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

25. Fourth, it is unclear to the examiner if Applicants' argument rests on a system which has unique routing address information for mobile nodes and mobile routers—such that there is more than one mobile router from which the mobile nodes can attach to—thus, requiring unique routing address information for (each of) the mobile router(s). Also, it is unclear what signaling that the mobile router performs relative to the cellular system. For example, Applicants' Fig. 1

shows a vehicle-mounted mobile router and, thus, lends itself to the interpretation that the vehicle-mounted mobile router runs on larger power source than a mobile node—thus, needing less power savings than a mobile node. Accordingly, defining an active state or a dormant state for such a mobile router further lends itself to the interpretation that such power savings in a mobile router is architecture-based such as a CDMA mobile radio system which employs power savings within the CDMA protocol.

26. With respect to claims 2 and 5, Applicants state that the S-bit in Leung et al. is included in the registration REQUEST packet, but that that extension 544 is not clearly described in Leung et al. [See **Applicants' Amendment dated July 2, 2008, page 11, paragraph 3**].

27. As noted in the rejection of claim 2 above, Leung et al. discloses that the S bit is set to create a binding for a care-of-address, [col. 12, lines 10-13]. This is interpreted as an active state. The examiner has made no reference in the rejection as to Fig. 5. If Applicants are arguing that that the S-bit is incapable of performing the signaling noted in the rejection, the examiner does not see such an incompatibility.

28. With respect to claims 4, 7, and 8, Applicants state that relative to the present invention, and the mobile routers/nodes in Leung et al. must be considered always “on” whereas, apparently, such is not the case with the present invention [See **Applicants' Amendment dated July 2, 2008, page 11, paragraph 4 to page 12, paragraph 1**].

29. First, if Applicants mean that the current invention uses specific signaling/paging that specifically preserves battery consumption in a mobile node, such a limitation is not in the claims. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., specific signaling/paging that specifically preserves battery consumption in a mobile node) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

30. Second, *arguendo*, even if the battery preserving paging/signaling were made explicit, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

31. Third, if Applicants are arguing that the mobile station (a) must operate in a specific wireless network using a specific wireless protocol, or (b) that a specific paging signal can only wake up a dormant mobile station which is already registered in the foreign network [e.g., power saving feature in CDMA mobile stations], such a limitation is not in the claims. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the mobile station (a) must operate in a specific wireless network using a specific wireless protocol, or (b) that a specific paging signal

can only wake up a dormant mobile station) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

32. Fourth, it appears to the examiner that a significant part of Applicants' argument rests on the "states" of the mobile nodes—thus, a three state model appears to be more appropriate; for example, "on", "on—but dormant", and "off". The examiner thinks that such a model would assist Applicants claim their current invention—as the examiner understands it from applicants' specification.

Conclusion

33. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- (a) Tzmaloukas (USP 6,925,378), Enhanced mobile communication device with extended radio, and applications.
- (b) Garahi et al. (USP 7,149,197), Moveable access points for minimizing coverage and capacity constraints in a wireless communications network and method for using the same.
- (c) Narayanan et al. (USP 7,173,917), Unicast agent advertisement based on Layer 2 and Layer 3 motion detection.

(d) Garahi et al. (USP 7,206, 294), Moveable access points and repeaters for minimizing coverage and capacity constraints in a wireless communications network and method for using the same.

34. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARK A. MAIS whose telephone number is (571)272-3138. The examiner can normally be reached on M-Th 5am-4pm.

35. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing F. Chan can be reached on 571-272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

36. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

July 18, 2008

/Mark A. Mais/
Examiner, Group Art Unit 2619
/Wing F. Chan/
Supervisory Patent Examiner, Art Unit 2619
7/21/08